REMARKS

Claims 1-12 are pending in the application. Claims 1-12 have been rejected.

Claim Rejections Under 35 U.S.C 112

Claims 1-12 have been rejected under 35 U.S.C. 112, first paragraph, for failing to comply with the written description requirement because the claims contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. Specifically, Claims 1, 7, and 8 have been rejected because the specification does not provide support for the claimed function objects that are implemented by computer code that is compiled, interpreted, and run "in a non-centrally controlled manner."

Claims 1, 7, and 8 have been amended to more closely conform to the specification as originally filed.

Claim Rejections Under 35 U.S.C. 102(b)

Claims 1-7 and 9 have been rejected under 35 U.S.C. 102(b) as being anticipated by Pahng et al. ("Modeling and Evaluation of Product Design Problems in a Distributed Design Environment").

Applicants' invention provides a method for mapping business and engineering processes by using a system for generating an emergent model or "a model that is created without a predefined or global definition." Specification, p. 4, lines 10-11. Users are given access to a system for generating an emergent model. The inputs and/or outputs of data objects and/or function objects generated by the users are independently published and subscribed to, thereby creating a network of linked data objects and/or function objects in a manner free of a globally predefined network of data objects and/or function objects. Specification, p. 23, lines 3-5. The network of linked data objects and/or function objects are then analyzed and displayed to create a map of the business and engineering processes.

According to the present invention, networks of linked data objects and/or function objects are created with zero or more than one coordinating computing device as illustrated in Fig. 12b. In prior art systems a coordinating computing device 706 orchestrates communications between computing devices 702, 704, and 708 on a computer network (Fig. 12a). For example, in order for computing device 702 to send a message to computing device 708, the message must be coordinated through coordinating computing device 706. In contrast, the present invention uses a system for generating an emergent model that is implemented on a network of computer devices 710, 712 and 714 (Fig. 12b) that lack a single (or central) coordinating computing device (e.g., coordinating computer device 706 of Fig. 12a). In the network of computing devices depicted by Fig. 12b, messages are sent directly from one computing device to another computing device, without third player or intermediate coordination. For example, computing device 710 can send a message to computing device 712.

Pahng et al. disclose a Distributed Object-based Modeling and Evaluation (DOME) framework. According to this framework a design problem model is decomposed into objects or modules. These modules are distributed over computer networks and communicate via a standard network protocol such as CORBA. Pahng et al. describe the implementation layer of the DOME framework at page 6, col. 2 as follows:

> A distributed interface is wrapped around the group of standard OME modules (A and B in figure 9) to allow the local and distributed modules to communicate with each other. This distributed module's external interface now offers service calls to and from the remote module. A design problem model sees the distributed module as a separate application that is capable of providing services upon request.

Thus, Pahng et al. disclose a framework that allows local and distributed modules to communicate with each other. Pahng et al., however, implicitly teaches that the communication between modules is coordinated by a single computing device in creating a design problem model. For example, Pahng et al. teach a design problem model that "is created by decomposing the problem into modules and defining how

modules are related to one another" (page 7, col. 2). Thus, the design problem model of Pahng et al. is predefined by a single computing device including how the modules on different computing devices communicate and interact with one another.

The present invention, however, provides for the creation of a network of linked inputs and/or outputs of data objects and/or function objects in a manner free of a single or central coordinating computing device to define models. Accordingly, independent Claim 1 has been amended to include the limitation "wherein the <u>network of linked inputs and/or outputs of data objects and/or function objects is created in a manner free of a central coordinating computing device</u>" to distinguish the present invention over Pahng et al., which fail to disclose the creation of networks of data objects and/or function objects with zero or more than one coordinating computing device. Support for this claim language is found at least at page 4, lines 10-14, page 23, lines 3-5, and page 23, line 9 through page 24, line 4 (corresponding to Figs. 12a and 12b) in the specification as originally filed. No new matter is introduced. Thus, Applicants respectfully request that the rejection of Claim 1 be withdrawn.

Since Claims 2-7 and 9 depend from and are limited by Claim 1, Applicants respectfully request that the rejection of Claims 2-7 and 9 be withdrawn for at least the same above reasons.

<u>Claim Rejections Under 35 U.S.C. 103(a)</u>

Claim 8 has been rejected under 35 U.S.C. 103(a) as being unpatentable over Pahng et al. as applied to Claim 1 and further in view of "Web based collaborative visualization of distributed and parallel simulation" by Bajaj et al.

Bajaj et al. disclose an interaction model to support collaborative scientific visualization defined as "a collection of visualization users who wish to share the results and control of their simulations and visualizations." p. 48. The interaction model is composed of two or more DSAV loop models. Bajaj et al. describe the DSAV loop model as "[a] work project in the simulation environment ... viewed as a loop of activity with each basic component receiving information from the previous member of the loop and providing information to the next loop component." p.49. The basic components of

the DSAV loop model include Data sources, Simulation servers, Analysis tools, and Visualization clients. The interaction model is constructed by making connections between the basic components of different DSAV loops. Thus, the interaction model can provide for the distributed visualization of simulations and distributed simulation.

Bajaj et al., however, do not suggest or motivate its combination with Pahng et al. to create a network of linked inputs and/or outputs of data objects and/or function objects in a manner free of a central coordinating computing device as claimed in now amended base Claim 1. First, unlike the interaction model presented in Bajaj et al., Pahng et al. present a design problem model decomposed into distinct submodels. The relationships among the submodels or modules and their inputs and outputs define the design problem model. Second, Bajaj et al. focus on collaborative scientific visualization whereby users can view another user's simulation results and analysis, whereas Pahng et al. direct their attention to the construction of a model from distributed modules spread across a network.

In sum, Bajaj et al. teach collaborative scientific research through the use of collaborative visualization of other's use of simulation and analysis tools whereas Pahng et al. teach the construction of models via the use of distributed submodels or modules. Since it would not have been obvious to one of ordinary skill in the art at the time the present invention was made to use Bajaj et al.'s interpreted code in Pahng's modeling system, the § 103 rejection of Claim 8 should be withdrawn. No new matter is introduced. Applicants respectfully request acceptance of Claim 8 as now amended.

Claims 10 and 12 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Pahng et al. as applied to Claim 1 and further in view of "Firewalls Complete" by Goncalves. Claims 10 and 12 depend from base Claim 1. Pahng is argued above and those arguments similarly apply here. Goncalves does not add to Pahng the claimed "network of linked inputs and/or outputs of data objects and/or function objects [that] is created in a manner free of a central coordinating computing device" of the present invention. Since the prior art references (Pahng et al. and Goncalves) when combined do not teach or suggest all the claim limitations of now amended base Claim 1 ("wherein the network of linked inputs and/or outputs of data

objects and/or function objects is created in a manner free of a central coordinating computing device...") Applicants respectfully request that the rejections of Claims 10 and 12 be withdrawn.

Claim 11 has been rejected under 35 U.S.C. 103(a) as being unpatentable over Pahng et al. However, Claim 11 depends from Claim 1 and inherits all of the limitations of the base claim. Thus, Pahng et al. do not teach or suggest all the claim limitations "wherein the network of linked inputs and/or outputs of data objects and/or function objects is created in a manner free of a central coordinating computing device" as explained above. Therefore, Applicants respectfully request that the rejection of Claim 11 be withdrawn.

CONCLUSION

In view of the above amendments and remarks, it is believed that all claims (Claims 1-12) are in condition for allowance, and it is respectfully requested that the application be passed to issue. If the Examiner feels that a telephone conference would expedite prosecution of this case, the Examiner is invited to call the undersigned.

Respectfully submitted,

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